IN THE CLAIMS:

1. (Original) A vector capable of expressing an α -1,2-mannosidase or a functional part thereof in a methylotrophic yeast strain, comprising a nucleotide sequence coding for said α -1,2-mannosidase or said functional part.

2-34. (Canceled)

- 35. (New) A vector for expressing an α -1,2-mannosidase or a functional part thereof in a methylotrophic yeast strain, comprising a nucleotide sequence coding for said α -1,2-mannosidase or said functional part.
- 36. (New) The vector of claim 35, wherein said α -1,2-mannosidase is a protein of a fungal origin or of a mammalian origin.
- 37. (New) The vector of claim 36, wherein said α -1,2-mannosidase is derived from *Aspergillus*, *Trichoderma reesei*, *S. cerevisiae*, murine, rabbit, or human.
- 38. (New) The vector of claim 35, wherein said α -1,2-mannosidase or said functional part is genetically engineered to contain an ER-retention signal.
- 39. (New) The vector of claim 38, wherein said ER-retention signal comprises peptide HDEL (SEQ ID NO:1).
- 40. (New) The vector of claim 35, wherein the nucleotide sequence coding for said α -1,2-mannosidase or said functional part is operably linked to a promoter and a 3' termination sequence, wherein said promoter is the promoter of a gene selected from the group consisting of AOXI, AOXII, GAP, and FLD.
 - 41. (New) A vector for expressing a glucosidase II or a functional part thereof in

a methylotrophic yeast strain, comprising a nucleotide sequence coding for said glucosidase II or said functional part.

- 42. (New) The vector of claim 41, wherein said glucosidase II is a protein of a fungal origin or of a mammalian origin.
- 43. (New) The vector of claim 42, wherein said glucosidase II is *Saccharomyces* cerevisiae glucosidase II.
- 44. (New) The vector of claim 41, wherein said glucosidase II or said functional part is genetically engineered to contain an ER-retention signal.
- 45. (New) The vector of claim 44, wherein said ER-retention signal comprises peptide HDEL (SEQ ID NO:1).
- 46. (New) The vector of claim 41, wherein the nucleotide sequence coding for said glucosidase II or said functional part is operably linked to a promoter and a 3' termination sequence, wherein said promoter is the promoter of a gene selected from the group consisting of AOXI, AOXII, GAP, and FLD.
- 47. (New) A vector for disrupting the OCH1 gene in a methylotrophic yeast strain, comprising a portion of the OCH1 gene operably linked to a selectable marker gene, wherein said portion of the OCH1 gene operably linked to said selectable marker gene is capable of disrupting the OCH1 gene in said methylotrophic yeast strain.
- 48. (New) A genetically engineered strain of a methylotrophic yeast, wherein said strain is transformed with at least one of the vectors of claims 35, 41 or 47.
- 49. (New) The genetically engineered strain of claim 48, wherein said methylotrophic yeast is *Pichia pastoris*.

- 50. (New) A genetically engineered strain of a methylotrophic yeast, wherein said strain is transformed with a nucleotide sequence coding for an α -1,2-mannosidase or a functional part thereof, and wherein the OCH1 gene is said strain is disrupted.
- 51. (New) The genetically engineered strain of claim 50, wherein said methylotrophic yeast is *Pichia pastoris*.
- 52. (New) A genetically engineered strain of a methylotrophic yeast, wherein said strain is transformed with a nucleotide sequence coding for a glucosidase II or a functional part thereof, and wherein the OCH1 gene in said strain is disrupted.
- 53. (New) The genetically engineered strain of claim 52, wherein said methylotrophic yeast is *Pichia pastoris*.
- 54. (New) A method of reducing glycosylation on proteins produced from a methylotrophic yeast, comprising transforming said yeast with at least one of the vectors of claims 35, 41 or 47.
 - 55. (New) The method of claim 54, wherein said yeast is *Pichia pastoris*.
- 56. (New) A method of reducing glycosylation on proteins produced from a methylotrophic yeast, comprising transforming said yeast with a nucleotide sequence coding for an α -1,2-mannosidase or a functional part thereof, and with a nucleotide sequence comprising a portion of the OCH1 gene of said yeast operably linked to a selectable marker to effect the disruption of the OCH1 gene in said methylotrophic yeast.
 - 57. (New) The method of claim 56, wherein said yeast is *Pichia pastoris*.
 - 58. (New) A method of reducing glycosylation on proteins produced from a

methylotrophic yeast, comprising transforming said yeast with a nucleotide sequence coding for a glucosidase II or a functional part thereof, and with a nucleotide sequence comprising a portion of the OCH1 gene of said yeast operably linked to a selectable marker to effect the disruption of the OCH1 gene in said methylotrophic yeast.

- 59. (New) The method of claim 58, wherein said yeast is Pichia pastoris.
- 60. (New) A method of reducing glycosylation of a heterologous glycoprotein expressed from a methylotrophic yeast, comprising transforming cells of said methylotrophic yeast with at least one of the vectors of claims 35, 41 or 47, and producing said glycoprotein from the transformed cells.
 - 61. (New) The method of claim 60, wherein said yeast is Pichia pastoris.
- 62. (New) A method of reducing glycosylation of a heterologous glycoprotein expressed from a methylotrophic yeast, comprising transforming cells of said yeast with a nucleotide sequence coding for an α -1,2-mannosidase or said functional part thereof, and with a nucleotide sequence comprising a portion of the OCH1 gene of said yeast operably linked to a selectable marker, such that said α -1,2-mannosidase or said functional part thereof is expressed in transformed cells, and the OCH1 gene is said methylotrophic yeast is disrupted; and producing said glycoprotein from the transformed cells.
 - 63. (New) The method of claim 62, wherein said yeast is Pichia pastoris.
- 64. (New) A method of reducing glycosylation of a heterologous glycoprotein expressed from a methylotrophic yeast, comprising transforming cells of said yeast with a nucleotide sequence coding for a glucosidase II or a functional part thereof, and with a nucleotide sequence comprising a portion of the OCH1 gene of said yeast operably linked to a selectable marker, such that said glucosidase II or said functional part thereof is expressed in transformed cells, and the OCH1 gene is said methylotrophic yeast is disrupted; and producing said

glycoprotein from the transformed cells.

- 65. (New) The method of claim 64, wherein said yeast is Pichia pastoris.
- 66. (New) A glycoprotein produced by the method of claim 60.
- 67. (New) A glycoprotein produced by the method of claim 62.
- 68. (New) A glycoprotein produced by the method of claim 64.
- 69. (New) A kit comprising at least one of the vectors of claims 35, 41 or 47.
- 70. (New) The kit of claim 69, further comprising a methylotrophic yeast strain.
- 71. (New) A kit comprising the methylotrophic yeast strain of claim 48.
- 72. (New) A kit comprising the methylotrophic yeast strain of claim 50.
- 73. (New) A kit comprising the methylotrophic yeast strain of claim 52.
- 74. (New) A method for producing in methylotrophic yeast, glycoproteins having carbohydrate structures similar to those produced by human cells, comprising providing a methylotrophic yeast strain, which does not express at least one enzyme involved in production of high mannose structures; and introducing into the yeast strain at least one enzyme for production of Man₅GlcNAc₂.
- 75. (New) The method of claim 74, wherein said enzyme involved in production of high mannose structures is alpha-1,6-mannosyltransferase encoded by the OCH1 gene.
 - 76. (New) The method of claim 74, wherein said methylotrophic yeast strain is

an OCH1 mutant strain.

- 77. (New) The method of claim 76, wherein said OCH1 mutant strain is made by transforming a wild type methylotrophic yeast strain with the vector of claim 47.
- 78. (New) The method of claim 74, wherein said enzyme for production of Man₅GlcNAc₂ is a mannosidase or glucosidase.
- 79. (New) The method of claim 78, wherein said mannosidase is α -1,2-mannosidase.
 - 80. (New) The method of claim 78, wherein said glucosidase is glucosidase II.
- 81. (New) The method of claim 74, wherein said enzyme for production of Man₅GlcNAc₂ is of a fungal origin or a mammalian origin.
- 82. (New) The method of claim 74, wherein said enzyme for production of Man₅GlcNAc₂ is targeted to a subcellular location in said methylotrophic yeast where it is optimal to produce Man₅GlcNAc₂.
 - 83. (New) The method of claim 82, wherein said subcellular location is the ER.
- 84. (New) The method of claim 74, wherein said methylotrophic yeast is of the genera *Candida*, *Hansenula*, *Torulopsis*, or *Pichia*.
- 85. (New) The method of claim 84, wherein said methylotrophic yeast is selected from *Pichia pastoris*, *Pichia methanolica*, *Pichia anomola*, *Hansenula polymorpha* or *Candida boidinii*.

- 86. (New) A method for producing in methylotrophic yeast, glycoproteins having carbohydrate structures similar to those produced by human cells, comprising providing a methylotrophic yeast strain, which does not express at least one enzyme involved in production of high mannose structures; and introducing into the yeast strain at least one enzyme for production of Man₅GlcNAc₂, wherein said enzyme for production of Man₅GlcNAc₂ is targeted to a subcellular location in said methylotrophic yeast where it is optimal to produce Man₅GlcNAc₂.
- 87. (New) A method for producing in methylotrophic yeast, glycoproteins having carbohydrate structures similar to those produced by human cells, comprising providing a methylotrophic yeast strain, which does not express at least one enzyme involved in production of high mannose structures; and introducing into the yeast strain at least one enzyme for production of Man₅GlcNAc₂, wherein said enzyme for production of Man₅GlcNAc₂ is targeted to a subcellular location in said methylotrophic yeast and wherein said subcellular location is the ER.
- 88. (New) A method for producing in a methylotrophic yeast, glycoproteins having carbohydrate structures similar to those produced by human cells, comprising introducing into the yeast at least one enzyme for the production of Man₅GlcNAc₂, and producing said glycoproteins in said yeast.
- 89. (New) A method for producing in methylotrophic yeast, glycoproteins having carbohydrate structures similar to those produced by human cells, comprising providing a methylotrophic yeast strain which does not express at least one enzyme involved in production of high mannose structures, and producing said glycoproteins in said strain.